PROGRAM	:	**NURSING**
SUBJECT	:	**HUMAN PHYSIOLOGY I**
CODE	:	**HPH1B20**
DATE	:	NOVEMBER/DECEMBER EXAMINATION 3 DECEMBER 2016
DURATION	:	90 min
WEIGHT	:	50: 50
TOTAL MARKS	:	50

EXAMINER	:	P.C. DE LANGE- JACOBS
MODERATOR	:	S EAGLETON
NUMBER OF PAGES	:	3 PAGES

REQUIREMENTS	:	1 X EXAMINATION SCRIPT

2/…

INSTRUCTIONS TO CANDIDATES:

1. THIS QUESTION PAPER MUST BE RETURNED WITH YOUR EXAMINATION ANSWER SCRIPTS.

QUESTION 1

1.1 The alveoli of the lungs:

1.1.1 Describe the 3 cell types found in the alveoli. 3 x 1 = (3)

1.1.2 Discuss the function for each cell type mentioned in 1.1.1 3 x ½ = (1½)

1.1.3 Name one disorder for each if the functions of the cell types mentioned in 1.1.1 have been compromised. 3 x ½ = (1½)

1.2 Explain the process of pulmonary ventilation during **quiet inhalation.** 8 x ½ = (4)

[10]

QUESTION 2

2.1 Absorption in the small intestine

2.1.1 Discuss in detail the adaptations for absorption in the small intestine 6 x ½ = (3)

2.1.2 Name two brush border enzymes and their respective function. 4 x ½ = (2)

2.2 List **6 (six)** examples of metabolic regulation by the liver. 6 x ½ = (3)

2.3 Secretion of hydrochloric acid (HCl)

2.3.1 Name the organ and cell type responsible for the secretion of HCl. 2 x ½ = (1)

2.3.2 Arrange the following steps in the secretion of HCl in the right sequence.

(You only need to write the correct sequence of the corresponding numbers in your answer script,) (1)

1. H_2CO_3 dissociates
2. chloride ion combines with H^+ in the gastric lumen
3. water and CO_2 combine to form carbonic acid
4. H^+ and bicarbonate ion are transported out of the cell

[10]

QUESTION 3

3.1 Use drawing(s) with explanatory annotations, to explain the difference in the composition between blood and the filtrate in Bowman's capsule and relate these differences to the structure of the filtration membrane. 14 x ½ = (7)

3.2 Explain and distinguish between transport maximum and renal threshold.d
4 x ½ = (2)

[9]

QUESTION 4

4.1.1 Use a flow diagram to explain **only the process of meiosis** during spermatogenesis.
8 x ½ = (4)

4.1.2 Indicate the blood- testis barrier on your flow diagram (4.1.1) and then briefly discuss the structure and function thereof. 4 x ½ = (2)

4.2 After spermatogenesis in the testes, the other portions of the male reproductive tract are responsible for the survival of the sperm. What are the contribution of the following structures?

4.2.1 The epididymis 4 x ½ = (2)

4.2.2 Bulbo-urethral (Cowper's) glands 2 x ½ = (1)

[9]

QUESTION 5

5.1 Explain the process of fertilization 10 x ½ = (5)

5.2 Use only a diagram to explain the role of positive feedback in the homeostatic regulation during labour. 7 x 1 = (7)

[12]

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TOTAL MARKS: 50